NOTICE OF ALLOWANCE AND FEE(S) DUE

2512	7590	10/14/2009

Perman & Green, LLP
99 Hawley Lane
Stratford, CT 06614

EXAMINER
FAULK, DEVONA E

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 10/14/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,891	03/31/2004	Todd Schneider	881-011758-US (PAR)	9081

TITLE OF INVENTION: METHOD AND SYSTEM FOR ACOUSTIC SHOCK PROTECTION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	01/14/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: __Mail__   Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

2512   7590   10/14/2009

Perman & Green, LLP
99 Hawley Lane
Stratford, CT 06614

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

_____ (Depositor's name)

_____ (Signature)

_____ (Date)

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nonprovisional	YES	$755	$300	$0	$1055	01/14/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
FAULK, DEVONA E	2614	381-055000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) :   ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☐ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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Typed or printed name _____   Registration No. _____

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 872 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 872 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101   or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

	Application No.	Applicant(s)
Notice of Allowability	10/815,891	SCHNEIDER ET AL.
	Examiner	Art Unit
	DEVONA E. FAULK	2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *amendment filed on 6/23/09.*

2. ☒ The allowed claim(s) is/are *1,3-10,12-20 and 29-41.*

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☒ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☒ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

     * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

     (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

     (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____.

DETAILED ACTION

Response to Remarks

1.   The applicant amended claims 1 and 7 to overcome the 101 rejections set forth in the previous office actions.

2.   Claims 10,12-20 and 29-41 were indicated as allowable in the previous office action. Upon further inspection and search, the examiner felt an examiner's amendment was necessary for all of the independent claims. The applicant's agreed to an examiner's amendment to place the claims in allowable form.

3.   Claims 2,11,21-28 are cancelled.

EXAMINER'S AMENDMENT

4.   An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

     Authorization for this examiner's amendment was given in a telephone interview with John Harris (Reg. No. 39,465) on 9/29/09.

The claims are to be amended as follows:

Claim 1 is to be amended to recite the following:

A method of providing protection against acoustic shock, the method comprising:

     receiving an input signal <u>in a time domain</u> [[in]] <u>at</u> an acoustic shock protection device;

performing a pattern analysis on ~~an~~ the input signal ~~in a time domain~~, including:

at an oversampled analysis filterbank, transforming the input signal to a plurality of band signals in a frequency domain, and

performing a feature extraction from the input signal <u>based on a fast average and a slow average of the input signal,</u> and performing a feature extraction from the plurality of band signals <u>based on a fast average and a slow average of each band signal,</u> to identify a parameter space corresponding to a signal space of the input signal;

applying a rule-based decision to the parameter space to detect an acoustic shock event, including:

determining a shock flag based on each of the input signal and band signal feature extractions; and

removing the acoustic shock event based on the shock flags.

Claim 7 is to be amended to recite the following:

A method of providing protection against acoustic shock, the method comprising:

receiving an input signal <u>in a time domain</u> [[in]] at an acoustic shock protection device;

performing a weighted overlap-add (WOLA) analysis on ~~an~~ the input signal ~~in a time domain~~ to transform the input signal to a plurality of band signals in a frequency domain;

performing feature extraction ~~on~~ <u>from</u> the input signal <u>based on a fast average</u> <u>and a slow average of the input signal,</u> and performing feature extraction ~~on~~ <u>from</u> the band signals <u>based on a fast average and a slow average of each band signal</u>;

detecting an acoustic shock event based on the input signal and band signal feature extractions, including:

determining a shock flag based on each of the input signal and band signal feature extractions,

performing gain control based on the acoustic shock detection including the shock flags and the features extracted from the input signal and band signals, the band signals being modified by the gain control;

applying a calibrated gain to meet a predetermined safe output level; and

performing a WOLA synthesis on the modified band signals to output an audio output signal from the acoustic shock protection device.

Claim 10 is to be amended to recite the following:

A system for providing protection against acoustic shock, the system comprising:

an analysis module for performing a pattern analysis on an input signal in a time domain, including:

an oversampled analysis filterbank for transforming the input signal to a plurality of band signals in a frequency domain, and

<u>a feature extraction module for</u> performing a feature extraction from the input signal <u>based on a fast average and a slow average of the input signal,</u> and performing a feature extraction from the plurality of the band signals <u>based on a</u> <u>fast average and a slow average of each band signal</u>, to identify a parameter space corresponding to a signal space of the input signal;

a detection module for applying a rule-based decision to the parameter space to detect an acoustic shock event, including:

a module for determining a shock flag based on each of the input signal and band signal feature extractions; and

a removal module for removing the acoustic shock event based on the shock flags.

Claim 18 is to be amended to recite the following:

A system for providing protection against acoustic shock, the system comprising:

a weighted overlap add (WOLA) analysis module for transforming an input signal in a time domain to a plurality of band signals in a frequency domain;

a feature extraction module for performing feature extraction ~~on~~ from the input signal based on a fast average and a slow average of the input signal, and for performing feature extraction ~~on~~ from the band signals based on a fast average and a slow average of each band signal;

a detection module for detecting an acoustic shock event based on the input signal and band signal feature extractions, including:

a module for determining a shock flag based on each of the input signal and band signal feature extractions;

a gain control module for performing gain control based on the acoustic shock detection including the shock flags and the features extracted from the input signal and band signals, the band signals being modified by the gain control;

a calibration module for applying a calibrated gain to meet a predetermined safe level; and

a WOLA synthesis module for synthesizing the modified band signals to provide an output signal.

Claim 36 is to be amended to recite the following:

A method of providing protection against acoustic shock, the method comprising:

performing a weighted overlap-add (WOLA) analysis on an input signal in a time domain to transform the input signal to a plurality of band signal in a frequency domain;

delaying the input signal to the WOLA analysis to allow time to obtain fast broadband features to aid in the interpretation of the WOLA analysis results;

performing feature extraction ~~on~~ from the input signal based on a fast average and a slow average of the input signal, and performing feature extraction ~~on~~ from the band signals based on a fast average and a slow average of each band signal;

detecting an acoustic shock event based on the input signal and band signal feature extractions;

performing gain control based on the shock detection and the features extracted from the input signal and band signals, the band signals being modified by the gain control;

applying a calibrated gain to meet a predetermined safe output level; and

performing a WOLA synthesis on the modified band signals to provide an output signal.

Claim 39 is to be amended to recite the following:

A system for providing protection against acoustic shock, the device comprising:

a weighted overlap add (WOLA) analysis module for transforming an input signal in a time domain to a plurality of band signals in a frequency domain;

a delay module for delaying the input signal to the WOLA analysis to allow time to obtain fast broadband features to aid in the interpretation of the WOLA analysis results;

a feature extraction module for performing feature extraction ~~on~~ from the input signal based on a fast average and a slow average of the input signal, and for performing feature extraction ~~on~~ from the band signals based on a fast average and a slow average of each band signal;

a detection module for detecting an acoustic shock event based on the inputs signal and the band signal feature extractions;

a gain control module for performing gain control based on the shock detection and the features extracted from the input signal and band signals, the band signals being modified by the gain control;

a calibration module for applying a calibrated gain to meet a predetermined safe level; and

a WOLA synthesis module for synthesizing the modified band signals to provide an output signal.

Allowable Subject Matter

5.   Claims 1,3-10,12-20,29-41 are allowed.

Regarding claims 1,7,10,18,34 and 36 prior art Brennan discloses a method of providing protection again acoustic shock, the method comprising the steps of:

performing a pattern analysis on an input signal in a time domain, including: at an oversampled analysis filterbank, transforming the input signal to a plurality of band signals in a frequency domain, and performing a feature extraction from the input signal and performing a feature extraction from the plurality of band signals to identify a parameter space corresponding to a signal space of the input signal (analysis filterbank 26 performs a pattern analysis on an input signal, Figure 1; column 4, lines 41-52);applying a rule-based decision to the parameter space to detect an acoustic shock event (inherent in digital signal processor 34; processor 34 determines gain adjustments based on characteristics of the frequency band signals and determines when those adjustments need to be made, column 10, lines 23-29 and 37-47; since a determination is made as to when gain adjustments need to be made, it is inherent that the levels of the input signals have to be detected and are one of the characteristics that determine when adjustments are to be made and this reads on the claim language as recited with the rule-based decision being whatever is used to make the decision that the gain needs to be adjusted); and removing the acoustic shock event (signal processor 34, Figure 1 determines gain adjustments which read on removing the acoustic shock event, Figure 1; column 10 , lines 23-37 and 37-47). Prior art Amano (US 5,136,577) discloses transforming an input signal into a plurality of oversampled sub-band signals in a frequency domain (division and decimation process part 2, Figures 4 and 5; column 8, lines 44-67); adaptively processing the sub-band signals to remove an acoustic shock event (echo canceller group 4, Figure 5; the echo being the acoustic shock event that is removed; column 8, lines 60-column 9, line 2); and

combining the processed sub-band signals to generate the output signal (synthesis filter

72, Figure 5; column 9,lines 12-15).

Regarding claims 1,7 and 10, the prior art or combination thereof fails to disclose or

make obvious the invention as a whole and in particular performing a feature extraction

from the input signal <u>based on a fast average and a slow average of the input signal,</u>

and performing a feature extraction from the plurality of band signals <u>based on a fast</u>

<u>average and a slow average of each band signal</u>, and determining a shock flag based

on each of the input and band signal feature extractions.

Regarding claim 18, the prior art or combination thereof fails to disclose or make

obvious the invention as a whole and in particular a feature extraction module for

performing feature extraction ~~on~~ <u>from</u> the input signal <u>based on a fast average and a</u>

<u>slow average of the input signal,</u> and for performing feature extraction ~~on~~ <u>from</u> the band

signals <u>based on a fast average and a slow average of each band signal</u>; determining a

shock flag based on each of the input signal and band signal feature extractions.

Regarding claims 36 and 39, the prior art or combination thereof fails to disclose or

make obvious the invention as a whole and in particular delaying the input signal to the

WOLA analysis to allow time to obtain fast broadband features to aid in the

interpretation of the WOLA analysis results and performing feature extraction ~~on~~ <u>from</u>

the input signal <u>based on a fast average and a slow average of the input signal,</u> and

performing feature extraction ~~on~~ <u>from</u> the band signals <u>based on a fast average and a</u>

<u>slow average of each band signal</u>.

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Claims 3-6,8,9,12-17,19,20,29-35, 37,38,40 and 41 are allowed due to dependency on claims 1,7,10,18,36 and 39.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVONA E. FAULK whose telephone number is (571)272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devona E. Faulk/
Primary Examiner, Art Unit 2614